AMENDMENTS IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of analyzing a wafer manufacturing process, ~~the~~ the method comprising:

imaging at least a portion of a mask to be used in ~~the~~ a wafer structure formation process; ~~and~~

simulating lithographic processing using data received from or derived from the imaging of the portion of the mask, thereby obtaining a simulated wafer structure; and

evaluating the portion of the mask by comparing the simulated wafer structure to a desired wafer structure.

2. (Original) The method of claim 1, further comprising comparing the simulated wafer structure to a second simulated wafer structure.

3. (Original) The method of claim 2, wherein the second simulated wafer structure is obtained by simulating the lithographic processing to be used in the wafer structure formation process, using mask design data as an input.

4. (Original) The method of claim 3, providing a user an option of selecting a figure of merit (FOM) by which critical dimension variations between the simulated wafer structures are to be calculated.

5. (Original) The method of claim 4, wherein the FOM is a line width.

6. (Currently Amended) The method of claim 4, wherein the FOM is a percentage difference in overall area of the first and second simulated structures ~~a structure of the transformed image data displayed within a corresponding structure of the design data~~.

7. (Original) The method of claim 3, where first and second simulated wafer structures are obtained by the same simulation method.

8. (Original) The method of claim 3, where first and second simulated wafer structures are obtained by aerial image simulation.

9. (Original) The method of claim 3, where first and second simulated wafer structures are obtained by different simulation methods.

10. (Original) The method of claim 1, further comprising displaying the simulated wafer structure on a display screen.

11. (Original) The method of claim 10, further comprising displaying a second simulated wafer structure on the display screen, wherein the simulated wafer structures at least partially overlap with one another.

12. (Original) The method of claim 11, providing a user an option of selecting a figure of merit (FOM) by which critical dimension variations between the simulated wafer structures are to be calculated.

13. (Original) The method of claim 1, wherein the imaging includes using a scanning electron microscope (SEM) to obtain an SEM image.

14. (Original) The method of claim 13, further comprising transforming the SEM image into computer-readable data.

15. (Original) The method of claim 14, wherein the transforming includes applying an image analysis algorithm to the image data.

16. (Original) The method of claim 14, further comprising scaling the data.

17. (Original) The method of claim 1, further comprising transforming data of a first type, obtained in the imaging, into data of a second type, to be used in the simulating.

18. (Original) The method of claim 1, wherein the simulating includes aerial simulation using a computer program.

19. (Original) The method of claim 18, wherein the simulating also includes simulating the developed resist image.

20. (Original) The method of claim 1, wherein the simulating includes simulating using an aerial image microscope system.